

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

REC'D 06 JUL 2005  
WIPO PCT

### (PCT Article 36 and Rule 70)

Applicant's or agent's file reference VUB-012-PCT2	<b>FOR FURTHER ACTION</b> See Form PCT/PEA/416	
International application No. PCT/EP2004/009216	International filing date (day/month/year) 17.08.2004	Priority date (day/month/year) 18.08.2003
International Patent Classification (IPC) or national classification and IPC C07C7/13, B01J29/40		
Applicant <b>VRIJE UNIVERSITEIT BRUSSEL et al.</b>		
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 4 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> <i>(sent to the applicant and to the International Bureau)</i> a total of sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> <i>(sent to the International Bureau only)</i> a total of (indicate type and number of electronic carrier(s)), containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).		
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application		
Date of submission of the demand 17.08.2004	Date of completion of this report 05.07.2005	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Telephone No. +49 89 2399-	



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/009216

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - international search (under Rules 12.3 and 23.1(b))
    - publication of the international application (under Rule 12.4)
    - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-22 as originally filed

**Claims, Numbers**

1-23 as originally filed

**Drawings, Sheets**

1/6-6/6 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):
4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
  - the description, pages
  - the claims, Nos.
  - the drawings, sheets/figs
  - the sequence listing (*specify*):
  - any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/009216

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims	11,16
	No: Claims	1-10,12-15,17-23
Inventive step (IS)	Yes: Claims	11
	No: Claims	1-10,12-23
Industrial applicability (IA)	Yes: Claims	1-23
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.  
**PCT/EP2004/009216**

**Re Item V**

Reference is made to the following documents:

- D1: EP-A-0 384 540 (SHELL INTERNATIONALE RESEARCH MAATSCHAPPIJ B.V) 29 August 1990 (1990-08-29)
- D2: US-A-6 069 289 (DANDEKAR ET AL) 30 May 2000 (2000-05-30)
- D3: US-B1-6 281 406 (CAIN JOHN J) 28 August 2001 (2001-08-28)

The present application is directed to a method for separating mono-branched hydrocarbons e.g. from a mixture of hydrocarbons comprising bringing said mixture into contact with at least one adsorbent, thereby allowing the selective adsorption of said mono-branched hydrocarbons by said adsorbent, and desorbing said mono-branched hydrocarbons from said adsorbent, thereby allowing to selectively separate said mono-branched hydrocarbons.

D1 and D2 are considered to represent the closest prior art (cf. passages indicated in the ISR) and disclose the separation of hexane, 3-methylpentane and 2,3-dimethylbutane (D1) and 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylpentane and hexane (D2) using zeolitic adsorption materials.

Thus, the matter of claims 1-10 12-15 and 17-22 is not novel in view of D1 and D2. The matter of claims 23 is disclosed in D3 (cf. passages indicated in the ISR) and, therefore, the matter of claims 23 is also not novel in the light of D3.

However, the use of the special zeolite MCM-22 (claim 11) in a method for separating mono-branched hydrocarbons as well as the special ratio (claim 16) mono-branched/linear alkanes = 1/1 is not disclosed in the prior art.

However, the matter of claim 16 does not show any technical effect on which an inventive step can be based.